CLAIMS

1. A film (1, 3, 6, 7, 8, 9), in particular a stamping or laminating film,

characterised in that

the film (1, 3, 6, 7, 8, 9) includes at least one component produced using organic semiconductor technology, in particular one or more organic field effect transistors.

2. A film (1, 3, 6, 7, 8, 9) as set forth in claim 1 characterised in that the film is a stamping or laminating film.

3. A film (1, 3, 6, 7, 8, 9) as set forth in claim 2 characterised in that the stamping or laminating film has a carrier film (11, 61, 71, 81), at least one layer (16, 67, 76, 88) comprising an organic semiconductor element, in particular polythiophene, at least one layer (15, 65, 75, 87) comprising an electrically insulating material and two or more layers (14, 17, 19, 64, 66, 74, 77, 86, 89) which are shaped in a pattern configuration in region-wise manner and which comprise an electrically conductive material.

4. A film (1, 3, 6, 7, 8, 9) as set forth in claim 3 characterised in that the electrically conductive layers (14, 17, 19, 64, 66, 74, 77, 86, 89) comprise an organic conductive material, in particular polyaniline or polypyrrole.

5. A film (1, 3, 6, 7, 8, 9) as set forth in claim 3 or claim 4 characterised in that the electrically insulating layer (15, 65, 75, 87) comprises an organic insulation material, in particular polyvinylphenol.

6. A film (1, 3, 6, 7, 8, 9) as set forth in one of claims 2 through 5 characterised in that the film is a stamping film which has a release layer (12, 62, 72, 82) and an adhesive layer (20, 69, 79, 97).

7. A film (1, 3, 6, 7, 8, 9) as set forth in one of claims 2 through 6 characterised in that the stamping or laminating film has one or more lacquer layers (13, 18, 63, 68, 73, 78, 84, 90) adjoining functional polymer layers.

8. A film (1, 3, 6, 7, 8, 9) as set forth in claim 3 characterised in that the electrically conductive layers, the layer comprising a semiconductor material and the layer comprising an electrically insulating material are transparent.

9. A film (2) as set forth in claim 1 characterised in that the film is a film element (2) which has a layer comprising an organic semiconductor material (16), in particular polythiophene, a layer (15) comprising an electrically insulating material and two or more layers which comprise an electrically conductive material (14, 17, 19) and which are shaped in a pattern configuration in region-wise manner.

10. A film as set forth in claim 9 characterised in that the film (2) is a film element which is applied to a substrate by means of a stamping or laminating film (1), in particular as set forth in one of claims 2 through 8.

11. A film (8) as set forth in one of the preceding claims characterised in that an electrical functionality, in particular that of at least one electrical component produced using organic semiconductor technology, is combined with optical features.

12. A film (8) as set forth in claim 11 characterised in that the film has a spatial structure (47) which is shaped between layers of the film and which on the one hand structures in a pattern configuration a layer (46) of the electronic component produced using organic semiconductor technology and on the other hand generates an optical-diffraction effect as an optical feature.

13. A film as set forth in claim 12 characterised in that the spatial structure (47) is formed by a superimposition of a microstructure and a macrostructure, wherein the macrostructure serves for the patterned structuring of a layer (46) of the electronic component produced using organic semiconductor technology and the microstructure serves for the generation of the optical feature.

14. A film (8) as set forth in one of the preceding claims characterised in that the film has a holographic-optical or diffractive layer (83, 84, 90, 91).

15. A film (8) as set forth in one of the preceding claims characterised in that the film has a thin-film layer sequence (94, 95).

16. A film as set forth in one of the preceding claims characterised in that the film has a decoration layer.

17. A film (8) as set forth in one of the preceding claims characterised in that the film (8) has two or more mutually superposed layers (83, 84, 90, 91, 94, 95) which generate an optical security feature, wherein one or more functional layers (86, 87, 88, 89) of the electronic component produced using organic semiconductor technology are arranged between such optically active layers.

18. A film as set forth in one of the preceding claims characterised in that structuring of functional layers of the component produced using organic semiconductor technology is implemented in the film by thermal replication or UV replication of one or more layers.

19. A film as set forth in one of the preceding claims characterised in that the film is used as a security element.

20. A process for the production of a film (1, 3, 6, 7, 8, 9) as set forth in claim 1 characterised in that structuring of one or more layers (43, 49, 50) of the at least one component produced using organic semiconductor technology is effected by thermal replication or UV replication.

21. A process as set forth in claim 20 characterised in that replicated into the layer (42) to be replicated is a spatial structure whose structure depth is greater than or equal to the thickness of the layer (42) to be replicated, so that the layer to be replicated is completely severed in part by the replication operation and an electrical functional layer (43) which is structured in a pattern configuration in accordance with the spatial structure is formed.

22. A process as set forth in claim 21 characterised in that such a spatial structure is replicated in an electrode layer comprising an electrically conductive material and then an electrical functional layer comprising a non-conducting or semiconducting material is applied to said layer.

23. A process as set forth in claim 20 characterised in that replicated into the layer (42) to be replicated is a spatial structure whose structure depth is less than the thickness of the layer (48) to be replicated.

24. A process as set forth in claim 23 characterised in that there is applied to the replicated layer (46) an electrical functional layer (49) of a material which upon hardening experiences a pre-defined reduction in volume, and that said material is applied to the replicated layer (46) in an application amount with which upon hardening a functional layer (49) which is structured in a pattern configuration in accordance with the replicated structure remains by virtue of the shrinkage in volume.

25. A process as set forth in claim 24 characterised in that the functional layer comprises an UV-hardenable material.

26. A process as set forth in claim 23 characterised in that an electrical functional layer (50) is applied to the replicated layer (46) and that the electrical functional layer is then removed, in particular by etching, to a depth such that there remains a functional layer (50) which is structured in a pattern configuration in accordance with the replicated structure.

27. A process as set forth in one of claims 23 through 26 characterised in that the spatial structure is replicated in an electrical functional layer comprising a non-conducting or semiconducting material and then an electrode layer comprising a conductive material is applied to said layer.

28. A process for the production of a film as set forth in claim 1, in particular a process as set forth in claim 20, characterised in that all or one or more electrode, insulation and semiconducting layers which are required for the function of the at least one component produced using organic semiconductor technology are introduced into a film structure over the entire surface area or part of the surface area by printing processes.

29. A process as set forth in one of claims 20 through 28 characterised in that an electrical functionality, in particular one or more components produced using organic semiconductor technology, and an optical functionality, in particular diffractive-optical structures, are produced by a replication operation.